NPIC/TSSG/DED-1581-69
11 April 1969

MEMORANDUM FOR: Chief, Development & Engineering Division, TSSG

SUBJECT : Comments Concerning the [redacted] Dry Silver Proposed Development and Implementation Plan

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REFERENCE : TSSG/PPS Final Report Dated March 1969 on Same Subject

1. The reference report has been reviewed in general and seems to cover the ground well. It is hoped that the report will bring better management coordination and support to the dry silver program during this critical phase so that work stoppages such as were experienced in 1968 can be avoided.

2. In the interest of clarification the following comments are offered to the report paragraphs as noted.

A. Page 3, Paragraph 1:

Correctly states that "there has been little operational requirements analysis upon which to establish a unique set of performance requirements." Only standard R&D requirements have been established. What needs to be established are such things as: what are photo lab requirements? PI requirements? PI field requirements? Graphics requirements? Storage and Retrieval requirements? CRT readout requirements, etc.

B. Page 3, Paragraph 2:

In testing dry process material, direct comparison with wet silver processing is not always pertinent, e.g., time-temperature by itself is not a proper indicator, other than for ball park purposes. The complicated development factors involved are actually heat transfer mechanics. It is especially important to point out how the dry process is unique and differs from regular wet processes—specifically established photographic tests are made for wet processing and not dry processing; e.g., "use D-19 developer in a tray..." New standards will have to be set for dry silver material.

C. Page 4, Paragraph #3:

Re—..."some modification will be required to optimize the (sic-printing) equipment."

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To avoid confusion with the photo lab personnel, it should be pointed out that the only change in existing printing equipment needed for dry silver material is not a modification in a true sense of the word. With present dry silver formulations, the [redacted] printer will 25X1
25X1 need a standard [redacted] light source required for printing regular color repro material. Any modern photo lab should already have this adapter kit (which takes only 20 minutes or so to install or remove). Outside of the adapter kit, no special printing equipment is required for dry silver material. The heat processed diazo material would require standard diazo printers. The only difference is the method of processing.

D. Page 5, Paragraph 2 (Equipment Requirements):

This paragraph references "Diversification of photo lab functions into PI spaces."

Due to political considerations (photo lab personnel) and to actual operations, it is extremely unwise to refer to PI's doing photo lab work. In fact, photo labs will always be needed for both quality and quantity photographic reproduction. These people are professional photographers and know how to manipulate and control photo processing to obtain specified and critical results. This should not be confused with the processing simplicity characteristics of dry silver which allows the PI to make certain standard and run-of-the-mill photo reproductions which are good enough for his own use. However, it would be exceptional for the PI to make "Quality" reproductions with any photo material.

E. Page 5, Paragraph 2:

This is a technical note which would be of importance to photo lab personnel. This paragraph refers to dry silver processors "tied to a
25X1 [redacted] Printer". The present High Speed Processors are using material
25X1 printed on an [redacted] printer. However, these processors are in no
25X1 remote sense tied to the [redacted] An approach such as this would be extremely difficult, if not impossible, for any photo processor that has variable processing rates.

F. Page 6, Trades Analysis:

Term "Trades Analysis" needs explanation. Few people would know what is meant by the term. PPS personnel are not clear on this term either.

The cost of dry silver materials eventually will be based upon the amounts of material ordered or on the market developed. It seems more

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pertinent to ask what are the expected quality and quantities of material required by present and planned future systems as tied up in with Center operations.

G. Page 7, Functional Uses:

Clarification needs to be made as to difference between Center Operational requirements as opposed to Research and Development requirements. Two separate concepts are involved.

The last paragraph on the page refers to a situation that is probably correct. The Center seems to be confused on this matter. However, the U.S. Navy appears to be very enthusiastic about dry silver for ship board and intelligence Center use. As a result, a very nice 18" X 24" film viewer/printer is being constructed in prototype form and plans are already formed for a second model. The services will probably be reaping the benefits from dry silver material before NPIC does. (The Air Force is sponsoring the High Speed Processors and has an order for a large amount of dry silver material).

H. Page 8, Paragraph 2:

"Availability of Equipment & Materials" refers to the development of off-the-shelf equipment... This is unclear and needs further explanation.

Additionally, the Implementation Schedule refers to "non-Silver Diazo" which is a technically facetious reference. There never has been anything silver or non-silver about diazo photo materials. The projected timing is also questionable, since heat processed diazo material has been researched and developed to the point where it is technically complete. The only step is to scale-up the material to production quantities.

Three pieces of equipment are listed in the implementation schedule as planned development, i.e., Sensitometric processor, Integrated Printer-Processor and the PI Printer Processor. These are certainly development items that are needed, as a matter of fact, the development should be already underway. As of now there are no definite plans for such development, despite the fact that DED personnel has been trying to initiate action for the last year or more. There are no procedures at the present time for the initiation or scheduling for new Research & Development of equipment.

I. Page 9, Paragraph 4:

Calls attention to electrical requirements for support of dry process material but omits hot air exhaust which is a requirement when processing large amounts of material. Particular reference should be given to high speed web processing.

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The small amount of heat required for sheet or chip processing does not call for any special venting, existing air conditioning will handle OK.

Serious question as to use of "combination printer processor." Tying a variable gamma processor into a variable exposure printing system is not a recommended approach, especially when photo sensitive material of various sensitivities are used, i.e., films, paper, diazo's, etc.

J. Page 10, Paragraph F:

..."establish an evaluation program to monitor material and equipment" ...brings up serious question of function within TSSG, especially those of R&D management vs. planning management. This needs careful consideration as to ramifications.

Reference to "operational requirements" is basically a very important and fundamental step that has never really been taken. It would appear that planning and programming could never be effectively managed without the very basic items of requirements and needs.

RECOMMENDATIONS

1. DED concurs with PPS. First things should come first--a high priority should be placed on determining the performance characteristics of dry-silver materials and processing techniques and equipment. It is believed that NPIC has the expertise to accomplish these goals in-house. ESD has personnel that are capable as well as technically cognizant. Additionally, the consultation services of outstanding experts throughout the U.S. are available.

If priorities and workloads do not permit utilization of Center personnel, the services of organizations such as NBS are available as back-up.

2. Formation of a task team is not recommended by DED. What is needed at this time is a coordinated plan to re-emphasize and place the proper responsibilities within NPIC. The various functional responsibilities already exist within the organizational elements of the Center. Only more effective coordination and clarification of roles is needed.

3. While cost and operational effectiveness analysis are very strong management tools when properly applied, it is not recommended that such an endeavor be initiated at this time! It would be a complete and total anachronism! Dry-silver material is going into pilot plant

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scale-up at the same time basic R&D is underway to produce more advanced material which will be more in keeping with the development goals. Prototype processing equipment is still in the development stage. To study the costs and operational effectiveness analysis of any R&D program in this stage, could not only be harmful to the development in its critical stages but would also be a waste of the time of good management personnel. It is also doubtful that dry-silver or any new or unconventional photo process will change wet silver utilization overnight. The change needs to be a gradual and smooth but continual transition from one method to another.

4. DED concurs with the urgency to insure the contractual continuity of the dry-silver material program. Possible loss of [redacted] key personnel, loss of precious development time on the R&D of the program and work stoppages have been experienced in the past due to contractual uncertainties. The dry-silver program is particularly vulnerable at this critical stage of "polishing-up" of the development. Most of the technical uncertainties have been overcome. Much time, money and effort has been expended to date by the Center. It would be a shame to see it fall short of the finish line when the Center has sponsored and carried it through the most basic, high risk, stages to one that now requires only refinement! 25X1

5. It is recommended that the dry-silver development be permitted to continue, unencumbered, through the natural course of research, development, test, evaluation, operational evaluation, and operational use.

[redacted] 25X1
R&D Branch II

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